

Chemists on the home front - I.G.Farben, German chemistry and National Socialism

But if you don't want to talk about capitalism, you should also keep quiet about fascism.

Max Horkheimer (1939)¹

I.G.Farben chemists equipped Hitler for the Second World War, they designed and managed I.G. Auschwitz. If chemistry professors or representatives of the chemical industry publicly address the relationship between chemistry and National Socialism at all today, which is rare enough, then

The alienation of scientists from Hitler was claimed. The National Socialist period was an instructive chapter on the "ambivalence" of scientific activity and on the "entanglement" and "tightrope walk" of tragic figures in the period from 1933 to 1945. But the relationship of chemists to the capitalist mode of production and the national state was already established in the middle of the 19th century. Chemistry's path since then - into National Socialism and beyond - was a royal road that was as celebrated as it was honored. Almost without exception, chemists supported the purposes of capital and the state. For business and for the honor of the nation, I.G.Farben planned with corpses and walked over corpses. And today - scientists in the Free West are once again or still dealing with this,

how in a few minutes, with technology still to be perfected, a people declared an enemy, like millions of Russians, could be murdered in a planned and industrialized manner.

can be used.

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The royal road of chemistry began in the middle of the 19th century. It had its reason in the fact that the results of the science were the existing pro-

production processes changed decisively. This opened up new production opportunities and facilitated the accelerated accumulation of capital in the chemical industry. For its part, the chemical industry promoted chemistry, whereby it was almost impossible to draw a line between basic research and applied research. Chemists paid from surplus value did not criticize capitalist exploitation; the capitalists gave chemists freedom in their narrower field of work. With the rapid development of organic chemistry and the discovery of synthetic dyes and pharmaceuticals, German chemistry took on a leading role, and German chemical companies achieved world renown - before the First World War, they produced 86% of the world's dyes. The relationship between chemists and the state was also established during this period: The state set up privileged research institutes that were exempt from university teaching and, significantly, were called Kaiser Wilhelm Institutes. Chemists supported in this way did not prove to be enemies of the state, but rather submissive nationalists. In their own way, the directors of these Kaiser Wilhelm Institutes served the Kaiser on his campaigns - with explosives and poison gas. The often-used phrase "German nationalist sentiment", typical of the time, trivializes the dangerous nationalism of these chemists because it places its causes either in the individual psyche or in a diffuse current of the times. This nationalism had an objective reason: the officialization of chemistry. While in the 17th and 18th century natural scientists were either private individuals or dependent At the end of the 19th century, state funding had become a material prerequisite for chemical research. It was precisely at this time that a massive nationalism developed in the minds of chemists, which then came into practice with chemical force during the First World War - chemistry was a very applied science at the time. If nationalism is seen as a psycho

If chemistry is dismissed as a logical problem for which it is not responsible, this only reveals that chemistry professors must be careful not to criticize the decisive material condition of their activity.

In 1909, Fritz Haber discovered the synthesis of ammonia from hydrogen and nitrogen, with material support from BASF. In 1913, a BASF engineer, Carl Bosch, winner of the 1931 Nobel Prize for Chemistry, succeeded in implementing Haber's invention on a technical scale. Initially, BASF justified its "Nitrogen Project" by arguing that it was necessary to become independent of natural nitrates, for which Chile had a monopoly, in order to be able to produce fertilizers on a sufficient scale. But saltpetre was also a crucial raw material for all explosives known at the time. In 1914, the Imperial General Staff relied on quick successes in the war of aggression and overlooked the raw material problem for Germany's war production. Nitrates, oil, rubber and various metals had to be imported from overseas, and the British navy was targeting a strategic Achilles heel with its blockade. The representatives of capital - led by the then head of AEG and later Foreign Minister of the Weimar Republic Walther von Rathenau - pointed out the need for long-term industrial planning of war production and accused the General Staff of working into the hands of the enemy by excluding capital from the war preparations. When a representative of capital proves to be a better nationalist, he makes his mark for a later career in politics; the Imperial War Ministry hastily set up a War Raw Materials Department under its authority with Rathenau as its head. Fritz Haber became head of the chemistry department with illustrious colleagues such as the Nobel Prize winners in chemistry Walther Nernst, Emil Fischer and Richard Willstätter. The "Haber office" pointed out to the hesitant and chemically unprepared general staff that the war would be over in the spring of 1915 if nitrate could not be produced synthetically. Only the outcome of the Battle of the Marne convinced

the military: Carl Bosch was commissioned to realize the problem-free oxidation of synthetically produced ammonia to nitric acid on a technical scale in the laboratory.

Wilhelm Ostwald had already developed a large-scale process for catalytic ammonia oxidation around 1900. The 1909 Nobel Prize winner in chemistry motivated his research in 1903, namely the discovery of a technically suitable catalyst, as follows: Although Germany's nitrogen requirements could be met as far as agriculture was concerned, technical saltpetre production from ammonia would be necessary in the event of war. In 1914, Mittasch discovered a suitable iron-bismuth contact at BASF, which he implemented on a technical scale in the midst of "feverish excitement" at a time when - as he himself wrote - "a forced surrender due to a lack of ammunition (!) was beginning to loom as the outcome of the war"². The iron-bismuth contact made it possible to produce saltpetre independently of platinum, which would have been dependent on imports. After the world war, platinum prevailed, but the German chemists had gained a promising head start in the field of catalysis thanks to the expansion of the Haber-Bosch and Ostwald processes during the world war.

The development of technical ammonia oxidation in 1914/1915 can be seen as the prototype of the Manhattan Project, which developed the Hiroshima bomb: Unrestricted cooperation of state and capital without regard to costs and material expenditure; scientists, engineers and skilled workers who had been involved in ammonia synthesis and had meanwhile been drafted into the army were released, heavy machinery, building materials and other technical equipment, which were now only available in limited quantities in Germany were consolidated; the one located within BASF

The company was subsidized by the state. While Bosch was producing the urgently needed explosives on the home front - the laboratories in Oppau - to make synthetic explosives.

Haber devised a plan to bridge the shortage of explosives and get the Western Front moving: the world's leading German paint industry produced toxic waste products such as chlorine and bromine, which could be turned into weapons of mass destruction with little effort. Walther Nernst motivated Carl Duisberg, Chairman of the Board of Management of Bayer, with the argument that waging war with poisonous gases could lead to a revival of the dye industry's idle capacities. Apparently Duisberg himself experimented with phosgene, writing in a letter dated March 1915: "You can best see how unpleasant it is from the fact that I have been lying in bed for almost 8 days because I have only inhaled this nasty stuff a few times ... If one treats the opponent for hours with this most poisonous of all gaseous products, then in my opinion the opponents will, if they do not, as is probably the case, immediately run away, subsequently fall ill and get feverish bronchitis"³ .

Preparations for the military use of chemical warfare agents were underway both at Haber's Kaiser Wilhelm Institute for Physical Chemistry and Electrochemistry in Berlin and at Bayer. Haber personally led the first attack with chlorine; 5,000 people died on the first evening alone. Haber accused the army command of incompetence for failing to follow up with a large-scale attack. As Haber later wrote bitterly, the Germans could have won the war that way. Haber was awarded the Nobel Prize in 1919, his "office" colleague Nernst in 1920, although neither Nobel Prize was for the poison gas experiments: Chlorine and phosgene were substances that had long been known chemically, Haber was mainly concerned with questions of application: are containers made of glass or metal better? How can soldiers using poison gases be protected? But the Nobel Committee made it clear that patriotic commitment to the state, even if this was the German Empire, which was not exactly internationally respected in 1919 because it had just been defeated, was not to be regarded as anything dishonorable.

During the First World War, the chemical industry experienced an upswing that was not thought possible but was made possible by the "chemists' war", even though sales of the number one article on the world market, paints of all colors, fell drastically. Within 9 months of the start of the war

Bayer, for example, converted its paint plants to war supplies. The technical realization of ammonia oxidation by BASF in Oppau, Bosch's Manhattan Project, was successful in May 1915. Immediately afterwards, BASF negotiated with the German government about expanding ammonia production. A contract was concluded in April 1916: The Reich government granted an initially non-repayable loan, which was then not repaid by BASF in worthless paper marks until 1923, in the midst of inflation, and a sales guarantee. BASF built a huge Haber-Bosch plant in Leuna and undertook to pay a share of the profits to the state for a period of 10 years. Leuna became a brilliant business, and BASF was still able to pay a 25% dividend to shareholders throughout the war despite high investments in "future technologies". In 1916, the most important chemical companies joined forces to form the "Interessengemeinschaft der deutschen Teerfarbenindustrie" (Interest Group of the German Tar Dye Industry). Cooperation was agreed without affecting the independence of the individual companies; patents were shared and profits from such productions were divided. The cooperation between the companies initiated by "Büro Haber" was institutionalized in the "Interessengemeinschaft". As a result of the First World War, the German chemical industry had lost its monopoly on paints. The American government recognized that the monopoly of the German dye industry provided a strategic advantage due to the waste products for the chemical poison gas war, and declared the start of dye production a national task. DuPont faced up to this challenge and the government helped with protective tariffs. In view of

The increase in foreign competition meant that the German paint industry was facing overcapacity. In order to avoid ruinous competition among themselves, this forced them to reach agreements on prices and quantity limits, i.e. to form a cartel. However, the world war - or more precisely, the construction of large-scale plants subsidized by the state for national reasons - also gave the German chemical industry a considerable head start in the advanced field of high-pressure chemistry. It was foreseeable that both research and technical realization would require capital on a scale that would have overwhelmed the individual chemical companies, which were by no means small. The "community of interests" of 1916 was the beginning: the aim was to avoid parallel research, collect patents and, above all, shift capital into the emerging "future technologies" of high-pressure chemistry. Shortly after its foundation, the "Interessengemeinschaft" made massive demands on the state: Carl Duisberg, its spokesman and later Chairman of the Board of Management of I.G.Farben, urged the army command to eliminate the labor shortage by forcibly deporting Belgian workers. He demanded that the government impose a general wage freeze and a ban on strikes for all workers.

Duisberg was a supporter of the demand for a Greater German Reich and spoke of Germany's and German chemistry's mission in the world and of introducing the "Führer principle" in the state and in the companies - long before anyone had heard of Hitler. Fritz TerMeer, a member of the I.G.Farben Executive Board and convicted war criminal, wrote in 1953 about Duisberg's "social attitude": "Duisberg had been particularly fortunate to be able to put his ideas of a factory community into practice with the construction of the large Leverkusen plant at the turn of the century. He had already realized what was propagated 30 years later under the term 'beauty of work'. The main streets of the factory adorned with rows of trees, factory colonies embedded in gardens, a large-scale park adjoining the factory ..." ⁴.

Whereas at the beginning of the 19th century scientists claimed to be "guardians of the progress of mankind"⁵ and thought about a sensible organization of society, by the end of the century they were inventive dwarfs and German nationalists. Nationalism thrives on the rage of people who lack the bare necessities of life, who are humiliated daily and shown that they are mere means to ends determined by others, who must cross out their autonomous subjectivity if they want to live. The rage produced by the rule of the state and capital is not directed against its cause, however, but is turned against Jews, Turks, foreigners in general and communists in identification with the oppressive authorities. Those deprived of their subjectivity find 'meaning' in the nation, in the greatness of Germany. Chemists did not lack the bare necessities of life, but their scientific work - and this was true from the middle of the 19th century onwards - also became a means. If they wanted to work scientifically, they had to adapt to the purposes of the state and capital. Scientific insight and self-confidence are thus eliminated, the intelligent character of scientists, the precondition of their possible freedom, is ruined. In identifying with the authorities that ruin them, scientists become nationalists. This contradiction, namely that scientific activity aims to ease the hardships of human existence, and that at the same time this scientific activity leads to workers in chemical factories living in misery, stained to the skin with fascinating new molecules, is what drove the chemists mad. It produced the anger that led to nationalism via this identification mechanism. The expression "apolitical" or "value-free" scientist, coined at that time, reveals what was taken away from the scientists: a political insight based on scientific reason. The

Limited support for scientific work with a non-interference in the narrower field of research was linked to the exclusion of any criticism of production conditions and state rule. When it came down to it, the non-political stood up for the honor of the fatherland with ingenuity. This relationship between natural scientists and capital and the state, established in imperial Germany, continued in the Weimar Republic and under National Socialism.

In 1926, the cartel "Interessengemeinschaft der deutschen Teerfarbenindustrie" merged to form "I.G.Farbenindustrie Aktiengesellschaft". The rounding off into a single company also consisted of swallowing up the German munitions industry, Dynamit AG and Westfälische Sprengstoff AG. But the main reason for the merger was to accelerate the rationalization process in the chemical industry: unprofitable capital, especially in the dyes sector, was destroyed. The 50,000 dye brands of the founding company were reduced to 10,000 and dye production was organized in such a way that related substances were each produced in just one plant. The "new technologies", in particular high-pressure chemistry, required an immense amount of capital. Economically, the founding of I.G.Farben, the rationalization of the dye sector in favour of the "technologies of the future", was a step towards a higher organic composition of capital. The technical implementation of the Bergius patent, the hydrogenation of coal into gasoline, would have exceeded BASF's financial possibilities. On the other hand, construction of a plant for the mass production of gasoline began in Leuna next to the Haber-Bosch plant in 1926. In the years up to 1930, there were major technical problems in Leuna, the investments far exceeded the planning figures, profitable production became more and more of a distant prospect and some members of the I.G.Farben Board of Executive Directors argued for its demolition for economic reasons. But Leuna continued to be expanded. The following reasons came into consideration:

- 1) The triumph of German chemistry in the First World War with ammonia synthesis and saltpetre supplies was still remembered, ammonia synthesis generated large profits, German high-pressure chemistry was a world leader and had the flair of "new technology".
- 2) Compared to traditional paint production, the plants of high-pressure chemistry had a higher organic composition of capital; surplus value could be accumulated and fixed in machinery to a greater extent.
- 3) The "Black Reichswehr" needed fuel - uncontrolled and independent of foreign suppliers.
- 4) In the years 1927 - 29, estimates of world oil reserves were uncertain and seemed to predict an imminent shortage.

In 1930, huge oil deposits were discovered in Texas and the price of petrol fell dramatically. At the end of 1930, the cost price for hydrogenated petrol was 700% higher than the world market price, and Leuna was economically bankrupt. Bosch and Bergius were awarded the Nobel Prize in 1931 - as in 1919 for Haber and 1920 for Nernst, a Nobel Prize at the right time. In 1932, Bosch, now Chairman of the Board of I.G. Farben, commissioned the chemist and I.G. Farben director Bütetisch, who had good contacts with the Nazis, to hold exploratory talks with Hitler about coal hydrogenation. In contrast to the imperial general staff, who had no knowledge of chemistry, Hitler developed a great interest in the technical details of oil synthesis. Based on the experiences of the First World War, Hitler argued in favor of oil synthesis. He recognized Germany's strategic Achilles heel in its dependence on foreign raw materials and saw self-sufficiency in key raw materials as a prerequisite for a militarily equipped Germany. Hitler promised financial support for the I.G. Farben project, Bosch said of Hitler afterwards: "The man is

more sensible than I thought"⁶ . As early as 1928, there were secret studies by the military in the Army Weapons Office, where there were no Nazis in 1928, which demanded support for inventions to replace the strategically important raw materials oil and rubber. In 1933, the Nazi government provided the support that had only been demanded in 1928; I.G.Farben received subsidies for the oil synthesis project in Leuna, which was ailing from a profitability point of view. In June 1933, the Nazis began the secret development of an air force, which was prohibited by the Treaty of Versailles, and I.G.Farben chemists were contacted to see whether the synthetic Leuna petrol was suitable as aviation fuel. In 1933, civil aviation played a quantitatively insignificant role; the NSDAP's trust in the I.G. chemists was so great that they were initiated into a top-secret project. It turned out that nothing would come of aviation fuel without lead tetraethyl. In a meeting in August 1934 between the Ministry of Economics, the military and I.G.Farben, I.G. was instructed to obtain a blanket license without quantity control as quickly as possible via its American business partner Standard Oil. The Nazis pushed I.G.Farben forward and used its international connections.

In September 1933, the I.G. presented the military with a four-year plan to expand German fuel production by a factor of three and a half. The military agreed. Bosch then negotiated with the Nazi government, resulting in a contract signed on December 14, 1933 and personally endorsed by Hitler: I.G.Farben undertook to expand the plants in Leuna to three times the annual capacity of 1933 by December 31, 1935 and to maintain the increased capacity during the 10-year term of the contract.

During the term of the contract, the Reich government guaranteed I.G. a price that was far above the world market price in 1933, which included a relatively high depreciation of the immense investments in Leuna, plus a five percent profit on the

investment capital. In addition, there was a guarantee for the sale of the petrol that I.G. Farben could not sell itself. This contract was concluded despite the personal animosities between Hitler and Bosch. For Bosch, the utilization of the fixed capital in Leuna was decisive above all other aspects. The Leuna contract also had an unforeseen and unforeseeable result for both I.G. Farben and the Reich government in 1933: the cost price was recalculated annually. Until 1936, the directly resulting and guaranteed production price was higher than the price that I.G. Farben achieved for Leuna gasoline. As planned, the Reich government had to pay I.G. a total of 5 million Reichsmarks. But after 1936, the guaranteed production price fell below the price achieved due to technical improvements. According to the contract, I.G. Farben had to hand over its extra profit to the state: a total of 91 million Reichsmarks by the time the contract expired on June 30, 1944. The loss of extra profit was compensated by

I.G. through the granting of licenses and by expanding Leuna capacity via the I.G. was able to keep the full amount of the profit for the surplus gasoline not covered by the contract. At the Nuremberg trial, the 86 million extra profit lost was still a reason for the defendants to sue.

The German troops proved to be masters of blitzkrieg, primarily due to their high level of motorization. The second essential raw material was caoutchouc, which, like oil, had to be imported in its entirety. I.G. Farben chemists were able to produce a synthetic substitute for caoutchouc - Buna: From the abundant raw materials lime and coal, butadiene can be synthesized via carbide and acetylene, which is then polymerized. Since 1926

I.G. Farben initiated intensive and costly research into the

research in the field of synthetic rubber. Between 1930 and 1932, mixed polymerization with styrene and acrylonitrile was achieved. Before 1933, the tech

nische Buna production was very slow to get off the ground, firstly because oil synthesis, as the risky No. 1 project, made considerable demands on investable capital, and secondly because the world market price for rubber fell in the early 1930s. The high research and development costs seemed to be lost. At the end of 1933, I.G.Farben negotiated with the Ministry of Economics and the Army Weapons Office about large-scale Buna production. Because production would not be competitive in the foreseeable future, Bosch demanded financial commitments from the government. In addition, Buna tires were to be tested on military vehicles. The military and the Ministry of Economics refused because of the high costs. Following Hitler's personal intervention, new negotiations took place in 1934. The army then tested Buna tires after all - with the result that they were not suitable for the army's requirements. The tire industry still refused to process Buna, because Buna tires were about 5 times more expensive than natural rubber tires. The Ministry of Economics refused to assume any costs. For the time being, no contract was concluded - and yet, relying on Hitler's verbal promises, I.G.Farben started a huge Buna factory in Schkopau. After further protracted negotiations, the Nazi government finally agreed to an interest-bearing loan and the purchase of a certain quantity of Buna at a profitable price.

The economic interests of I.G.Farben, which compelled it to utilize the oversized investment capital lying idle in Leuna, and the national interests of the Nazis, who were committed to self-sufficiency because of its military importance, went hand in hand, although they were not simply identical.

Before 1933, I.G.Farben was able to rely on the current regulations resulting from the outcome of the 1st World War.

The business foundations established during the Second World War, i.e. the power relations

positive view of the world market. The Nazis criticized this because the business success of I.G.Farben and the power of Germany did not go together.

fell. The following figure illustrates I.G. Farben's focus on global trade: in 1928, exports accounted for 57% of total sales. Before 1933, under the conditions of the current business principles, I.G. Farben only had the international option of realizing large-scale high-tech projects: As early as 1927, I.G. founded a factory in the U.S.A. together with Standard Oil to develop the hydrogenation of crude oil. A joint holding company was formed to which the worldwide rights to the hydrogenation patents were transferred, which I.G. paid dearly for from Standard. I.G. Farben alone was not in a position to raise the necessary capital for these major projects, especially as both synthetic petrol and Buna were not competitive at that time; I.G. was speculating on the large American market, where private passenger transport was already widespread, and on possible shortages and the resulting price increases for raw materials. Negotiations with Standard Oil proved to be difficult, as I.G. Farben only gave away its technical know-how in measured portions and sold it at a high price; in addition, the projects were extremely risky due to the uncertain raw material forecasts for crude oil and rubber. Both companies planned the global exploitation of modern hydrogenation processes, with I.G. Farben wanting to protect and expand its scientific and technical lead worldwide and the well-funded Standard hoping to gain an advantage over the competing oil companies. When oil and rubber prices fell drastically after 1930, I.G. Farben's international options for its high-tech projects became even more complicated. After I.G. switched to the self-sufficiency program in 1933, the U.S. factories were not expanded any further and technical development there was kept on the back burner. With the attack by the Japanese air force on Pearl Harbour at the end of 1941 and the Pacific War, there was a drastic shortage of rubber in the USA. The U.S. government had to realize that

Buna technology had lagged behind in the U.S.; it had to get rubber production going in the shortest possible time with emergency measures. In comparison, the fascist state fared better: the step from natural rubber to Buna was necessary to break down the organic barrier to production.

This technology cannot be developed by individual capitals that have to assert themselves in competition. The fascist state - and not the U.S. state - subsidized the technology of the future and thus realized the objective tendency of technology that lies in the breaking down of the organic barrier. This is one reason for the affinity of the chemists who invented the advanced technologies to National Socialism and their orientation towards a strong state.

When Hitler seized power in 1933, he decreed self-sufficiency in order to rearm Germany and thereby change the international balance of power in Germany's favor. He objected to the international integration of I.G. Farben because there was a danger that I.G.'s technical know-how would fall into the hands of other nations and military apparatuses. However, I.G. Farben should use its international connections to obtain important know-how for the nation. The above chronicle of the year 1933 shows that no great coercion was required: I.G. Farben quickly switched from world market orientation to the autarky program. In 1936, heavy industry, which had been closer to Hitler than I.G. Farben before 1933, refused to make the switch to unprofitable, low-grade German iron ore demanded as part of the autarky program. In this context. In this context, the Hermann Göring Group was established, directly controlled by the NSDAP, which introduced advanced technical procedures in the smelting process and then expanded into the armaments sector. diversified.

This gave the party and the government leverage against the steel industry, something that was not possible in the chemical sector thanks to the innovative I.G. Farben.

was necessary. After 1933, I.G.'s objective interest, the profit to be made, and that of the Nazi government, to strengthen Germany's power vis-à-vis the Versailles conditions, coincided, but were not congruent: Hitler regarded I.G.Farben as a means of enforcing Germany's supremacy on the continent. Leading I.G. representatives were mistrusted by Hitler, who despised capitalists who, regardless of national requirements, focused exclusively on profit - which did not mean, however, that the Nazi government's decisions caused economic damage to I.G.Farben, but merely that Germany's power was the primary consideration with and under which business could be conducted, and which, once militarily consolidated, promised much more profitable business. The switch to a self-sufficiency program and weapons production was therefore not originally the plan of the I.G. managers, but a state decision, within which I.G. Farben served as a means, as a high-tech supplier for the war. For its part, I.G.Farben realized more quickly and thoroughly than others that the expansion of its business success depended on how strong Germany would become.

A distinction must be made between two economically justified interests. Firstly, the interest in business success, which is directly related to the survival of the individual capital in competition; the criterion here is the profit to be made. Secondly, the interest in fixing accumulated surplus value in the form of machinery, whereby a higher organic composition of capital generally goes hand in hand with advanced technology. The latter interest can collide with business success - in the 19th century, the first chemist-entrepreneurs who developed new technologies at high cost went bankrupt; only the next generation of entrepreneurs, who bought up their equipment below value, produced profitably. An analogous collision occurred in the exceptionally fierce disputes in 1930 and 1931.

The I.G. Board of Directors was divided over the coal hydrogenation project in Leuna. One faction, driven by business success, argued in favor of abandoning the large-scale Leuna project, which was unprofitable for the foreseeable future, against the other faction, led by the brilliant high-pressure chemist Bosch. Despite his personal animosity towards Hitler, Bosch had to ally himself with the Nazis: Because the state subsidizes the fixing of accumulative surplus value in high-tech plants, in high-pressure chemistry with the Nazis, in nuclear power plant technology in the 50s and 60s. For this economic reason, the history of advanced technology in the capitalist mode of production is closely linked to military history - and the inventive scientists and technicians generally do not hesitate to place themselves at the disposal of the national task. After I.G.Farben had long distanced itself from the Nazi movement, CEO Bosch donated 400,000 Reichsmarks to the NSDAP shortly after seizing power and before the important March 1933 elections, by far the largest single donation of any industrial company. Such donations did not imply that the donors could have imposed their will on Hitler or that Hitler was their puppet. Rather, this donation was an entrance ticket and an inaugural gift for the negotiations on the subsidization of the high-tech projects. I.G.Farben could make good use of the Nazis firstly because of the stabilization of the conditions for the exploitation of the working class, because of the smashing of the workers' movement, especially the Communist Party, because of the consent of the workers to their exploitation and to the state, which consent was promoted by the populist momentum in the Nazi movement, and secondly because of the high-tech projects oil synthesis and Buna, the international realization of which had become more complicated in 1933. With the production price contractually guaranteed by the Nazi government with favorable amortization of the investment costs and guaranteed sales of a quantity of Leuna gasoline that would utilize the capacities, the oil synthesis

profitable in one fell swoop. Under conditions of self-sufficiency and rearmament, the second high-tech project, Buna, promised to be profitable. Access to the huge raw material reserves of the Soviet Union and a strong Germany opened up improved international prospects for I.G.Farben compared to the business foundations of Versailles. I.G.Farben therefore armed Hitler out of self-interest.

In April 1936, a Reich Commissariat for Raw Materials and Foreign Exchange was set up with Göring as its head - a planning authority and super ministry of economics. The sub-department for research and development was taken over by the I.G. Farben board member, the chemist Carl Krauch, with a staff of I.G. specialists. The plan was to supply Germany, which had few raw materials, with raw materials; the chemists were to synthesize substitutes for strategically important substances. The successfully implemented self-sufficiency program was a prerequisite for the planned warfare. For its part, the successful war was intended to create a sufficient raw materials base and cheap labor for German capital - in particular through access to raw materials in south-eastern Europe and the Soviet Union. There were revealing controversies with the Economics Minister Schacht, a conservative, Reichsbank President in the Weimar Republic and not a Nazi. Schacht rejected the expansion of Buna production on the basis of economic arguments. Buna was not competitive with natural rubber and had to be subsidized by the state. The Nazis and I.G.Farben succeeded in having a second I.G. plant built and subsidized - against the Ministry of Economics and against the Army Ordnance Office, which argued in favour of stockpiling natural rubber. Schacht also unsuccessfully opposed the fact that I.G. Farben received the lion's share of state subsidies in the four-year plan announced in 1936 - Schacht wanted to support other chemical companies in order to limit I.G.'s superiority. In 1937, 1938 and 1939, the Ab-

Krauch's authority over the Army Weapons Office was considerably reduced. Krauch, who remained I.G. Director, was given responsibility for planning the capacities for oil, synthetic rubber, explosives and ammunition. I.G. Farben thus had a direct influence on the planning and preparations for the Second World War. The complaint of the chemist, Haber, that chemically untrained military personnel were incapable of a raw materials and technology planning strategy, was finally heard: now chemists could plan the war.

The Nazis did not fundamentally reject I.G. Farben's international relations and alliances. For example, I.G. used its relations with Standard Oil and bought 500 tons of the lead tetraethyl essential for aviation fuel as a straw man for the Ministry of Aviation, which could not act as a direct buyer. I.G. tried - and was encouraged to do so by the Nazi government - to exploit cooperation, contracts and joint companies with Standard Oil in line with Nazi war planning: as little information as possible about technical processes in the U.S., as much information and, above all, capital from the U.S. to I.G. Farben. This was how the lead tetraethyl technology that was so important to the war effort was obtained. A joint company, Deutsche Äthyl GmbH, was formed with the Ethyl Gasolin Corporation, which was controlled by Standard, and began producing lead tetraethyl in Gabel (Brandenburg) in 1935. As late as 1943, the American company received the following in addition to license fees the dividends to which it is entitled.

I.G. Farben followed Hitler's conquering forces and took over the "reorganization" of the chemical industry in the occupied countries. All Jewish employees were dismissed. I.G. Farben's methods of appropriation were brutal, but they were legally sanctioned by takeover contracts - the I.G. probably also reckoned with Hitler's military defeat. When I.G. Farben negotiated with Czechoslovakian companies after the Munich Agreement about the purchase of their plants in the Sudetenland, it threatened the Czechs who did not want to sell that Hitler could use this as an opportunity to occupy the rest of Czechoslovakia. They then sold on the terms of the I.G.

Colors. Even before the blitzkrieg against Poland, I.G. had a plan for potential "acquisitions" of the most important Polish chemical companies. There was resistance in the Ministry of Economics to I.G.'s methods of acquiring foreign companies. They only wanted to approve provisional management by I.G. but not a permanent takeover. The I.G. quickly realized that Himmler's SS and not the Ministry of Economics and Göring were in charge in the occupied territories. It reacted to the shifts in power within the Nazi state and began to develop a closer relationship with the SS. As the labour shortage increased with the length of the war, I.G. organized the deployment of foreign workers in Germany. Entire work squads from the occupied territories - "closed units" that formally remained employees of the foreign parent company - were forcibly sent to Germany.

The German troops owed their successes in the blitzkriegs of 1939-41 not least to their superior motorization and mobility. Powered by Leuna petrol and on Buna tires, they roamed Europe. However, the many quick victories had strained the raw material reserves. For the attack on the Soviet Union, which was planned from the outset and would decide the war, it was necessary to expand the production of synthetic oil and Buna. Hitler postponed the date of the attack by a year, while in the meantime the war planners projected the raw material requirements for the war against the Soviet Union. The Reich Ministry of Economics conferred with the I.G. representatives and chemists Fritz TerMeer and Otto Ambros. The existing production facilities at Buna in particular were not sufficient. At the end of 1940, Krauch sent Ambros, one of the most talented chemists at I.G. Farben, a student and protégé of Nobel Prize winner Richard Willstätter, who had already made chemical contributions to the First World War in the "Haber Office", to occupied Poland to explore a location for a new high-pressure plant. Ambros had built the first large Buna plant in Schkopau and was for Buna what Bosch was for the

ammonia synthesis and coal hydrogenation. Ambros visited several locations and suggested one that had the following advantages: excellent transportation conditions, water supply because it was situated on three rivers, nearby coal mine. The name of the Polish village was Auschwitz. The I.G. chemists considered sites in Norway as alternatives to Auschwitz. The advantage of Auschwitz for I.G.Farben: The SS was building a concentration camp nearby, and the supply of forced laborers seemed unlimited. On the other hand, there were reports of growing resistance from the Norwegian population against the German occupiers. The shortage of labor was a serious problem for the production facilities in Germany. In May 1941 - one month before the start of the Barbarossa project - work began on the construction of plants for coal hydrogenation and Buna production in Auschwitz. It was the largest single project of the entire I.G.Farben and was to become the world's largest chemical plant for synthetic oil and rubber. The chemists Ambros (Buna) and Bütefisch (fuel) were appointed as directors. Hitler's plan to extend National Socialist rule to the East coincided with the interests of I.G.Farben: the huge plant, which was named 'I.G.Auschwitz' in the I.G. books, was designed for permanent operation - due to its geographical location and high capacities, it seemed suitable for supplying Buna and petrol to an East liberated from Bolshevism, even in the expected peace. Because of its access to cheap forced labor, I.G. Auschwitz promised considerable extra profits.

In view of such prospects, I.G.Farben decided to forego state subsidized and built I.G.Auschwitz on its own. The planning and start of construction of I.G.Auschwitz therefore took place before the German attack on the Soviet Union. I.G.'s main problem was the procurement of labor for the construction work. Thousands of unskilled workers were needed; their work was of a temporary nature and could not lead to permanent employment at I.G. Auschwitz. The availability of labor from a concentration camp fitted into I.G.'s construction planning.

The defendants tried to deny this point at the Nuremberg Trial, but it is not credible that the planning only covered transport, water supply, coal and building materials, but not the question of labor, when there was a growing shortage at the time. It is documented that the commandant of Auschwitz was reluctant to hand over the prisoners to the I.G. construction site; the prisoners were not forced upon the I.G.. The following were needed at the beginning 12,000 assembly workers, a number that could not be achieved with the voluntary workers that were available. From the very beginning, concentration camp prisoners worked as unskilled laborers on the construction site. From the start of construction, I.G. had too few

- The company was looking for qualified workers in particular and made representations to the state labor offices. These assigned Polish and Russian forced laborers and prisoners of war; in November 1943, 23,000 people were employed on the construction site, including 19,000 foreigners and concentration camp prisoners. I.G. received a promise from the SS that more skilled workers would be transferred to Auschwitz. "There is no doubt that I.G. had no particular preference for using concentration camp prisoners or foreigners who had been forced to do labor service in Germany *against* their will. On the other hand, it is equally certain that I.G. "resigned itself to the situation created for it by the state labor offices"⁷ (according to the verdict in the I.G. Farben trial). Because of the importance of I.G. Auschwitz, Himmler appointed the chief of his personal staff, Wolf, as liaison officer between the SS and I.G. Farben. Wolf and the chemist Bütetisch negotiated a contract for I.G.; the SS left the

I.G. paid the concentration camp prisoners during the day, the I.G. paid the SS three marks per day.

day for an unskilled worker, four marks for a skilled worker, 1.50 marks for children. The prisoners on the construction site received special work incentives such as cigarettes from I.G.. However, the construction of I.G. Auschwitz did not proceed according to plan. I.G. had expected 75% of the

prisoners to work, but not even half of that was achieved. In the thorough

In the I.G. weekly reports, complaints were made to the SS that the treatment of the prisoners was detrimental to production. The prisoners had to work every day 6 kilometers to march from the main Auschwitz camp to the I.G. building sections, fatigue, illness, malnutrition lowered labor productivity. Technical problems and delays compared to the plan drove up costs; investments amounted to 1 billion Reichsmarks, which were not utilized. I.G. reacted quickly with an unconventional solution typical of I.G.: I.G. set up its own concentration camp in 1942. The investment required for this was estimated at 5 million marks, a small sum compared to the billion that lay idle. Due to the size of the investment, there could be no failure, the private Monowitz concentration camp seemed more cost-effective, the control over the prisoners more direct, the discipline more efficient. The I.G. was responsible for the accommodation, food and health of the prisoners, while the SS took charge of guarding, punishing and supplying the prisoners. The Auschwitz motto above the entrance read: "Work makes you free". Fritz Sauckel, the General Plenipotentiary for the deployment of labor, formulated the instructions for the treatment of the workers: "All these people must be fed, housed and treated in such a way that they produce the greatest possible performance" with the most economical use possible"⁸ . In its concentration camp, the I.G. issued the order that no more than five percent of the camp inmates were allowed to be ill for longer than 14 days, i.e. was not fit for work, was classified as incurable. The food was calculated in such a way that the prisoners died of emaciation after 3 months. A sophisticated punishment system and the threat of liquidation in Birkenau were intended to force the inmates to work as hard as possible. Those I.G. directors who adapted the efficient utilization of Jewish concentration camp inmates to the special conditions of Auschwitz on the basis of the efficient utilization of labour (and this especially in conflict with the SS!) were the same people who did not see the point,

The I.G. was afraid of losing capable and efficient employees due to the Nazi racial laws and therefore went to great lengths to protect Jewish chemist colleagues, especially at director level, from the Nazis. This "criticism" of the Nazis by the I.G. was and still is very popular: today, the expulsion of many scientists at that time is lamented as a loss that Germany can never make up for. A member of the Hoechst Board of Management attributes the "German backlog" in biotechnology to that expulsion.

In 1943, I.G. board member Krauch wrote to Himmler that he had been pleased to hear that Himmler wanted to support another chemical plant along the lines of Auschwitz, which I.G. considered necessary to secure the supply of Buna. For another existing I.G. plant (I.G.-Heydebreck), Krauch recommended setting up a company-owned concentration camp to remedy the labor shortage.

The I.G. was also involved in the mass extermination by the SS. Initially, the SS worked with trucks whose exhaust fumes were directed into the interior of the vehicles. This was followed by specially constructed gas chambers and the use of Carbon monoxide.

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This was not efficient enough for planned and industrial murder. A company controlled by the I.G. - Degesch (Deutsche Gesellschaft für Schädlingsbekämpfung) - then supplied the infamous Zyklon B. Degesch did a brilliant business with the SS, and the I.G. doubled its dividend income from its deposits with Degesch.

I.G. chemists had developed nerve gases (Tabun, Sarin, Soman) that were incomparably more dangerous than the warfare agents of the First World War. They were tested on Jewish prisoners. Hitler conferred with the I.G. chemists about the use of Tabun. The misjudgement that the Allies possessed comparable chemical warfare agents prevented Hitler from using the nerve gases. Due to this misjudgment, there was no chemical Hiroshima.

The Nuremberg trial of leading I.G. chemists and managers began in mid-1947, by which time the Cold War had already begun and the focus was once again on the new old enemy in the East - "the Jewish-Bolshevik world conspiracy" or "the evil empire". It was therefore necessary for the state that the defendants' commitment to capital and nation was not condemned in toto, but only derailments that went beyond the normal commitment to capital and nation and whose punishment could be used to propagandaistically confirm normality. So the "abnormal" was condemned, in particular the defendants' contribution to forced labor and enslavement in I.G. Auschwitz that went beyond the normal exploitation of the "voluntary" worker. The extremely lenient sentences are not surprising; the defense's trial position in particular contained remarkable clarifications: In peacetime, the defendants had been perfectly normal chemists and managers, staunch anti-communists and decent patriots. The war had forced them to relocate their activities in order to serve their country. This could not be punishable. Chemists and managers in other countries had basically done the same thing: "Replace I.G. with ICI for England or DuPont for America, and the parallel becomes obvious". Although the Nazi lapses could not be excused, Hitler and the SS were primarily responsible for them, as they had exploited and misled honest patriotism. One had to give the defendants credit for recognizing a real core in Nazi propaganda: anti-communism. Like the defendants, every American manager feared nothing more than the spread of communism. Hitler's speeches had impressed the defendants because "the commitment to peace" and the "fear of the communist danger ... ran like a red thread through these speeches. How right Hitler was with this statement of his policy ... can be proven by the European developments of the last few months"⁹ .

Immediately after the Second World War, General Eisenhower set up a commission of inquiry which came to the following conclusion: "Without I.G., with its huge production facilities, its extensive research and its wide-ranging technical experience, as well as its comprehensive concentration of economic power, Germany would not have been in a position to launch its war of aggression in September 1939"¹⁰. General Eisenhower therefore proposed Destruction of all I.G. plants used for armaments production, breaking the monopoly position, inclusion of the manufacturing plants in the reparations goods, takeover of the research programs and facilities. But the dismantling of the I.G. was cleverly delayed, the beginning of the Cold War made Western Germany an ally. At first, the Allies thought of splitting the company into 47 individual companies; the Adenauer government and the shareholders, on the other hand, argued in favor of the big three, Bayer, Hoechst and BASF. In the end, the Allies ordered the division into 9 companies and prohibited the participation of convicted war criminals. When the lists of board members and executives of the big three were published in 1951, many former I.G. employees were on them. Although I.G. had been deleted as a legal entity, the old I.G. shareholders received shares in the new companies as compensation for those they had lost. Friedrich Jähne, convicted as a war criminal, became Chairman of the Supervisory Board of Hoechst in 1955, Fritz TerMeer, sentenced to 7 years in prison for plundering and enslavement, became Chairman of the Supervisory Board of Bayer in 1956. Heinrich Bütetisch, who had inspected Auschwitz together with Himmler in 1942, then was director of the oil department of I.G.-Auschwitz, sentenced to 6 years in 1948, released early to take up leading positions in the chemical industry, was awarded the "Grand Cross of Merit of the Federal Republic of Germany" in 1964. After public protests, the award had to be withdrawn.

The Federal Republic of Germany's coming to terms with the past usually goes like this: chemistry and the chemists (and you can put anything that is dear to Germans in this place: sport, cinema, the Wehrmacht, patriotic sentiment) contributed nothing to National Socialism, "ambivalence" and "tightrope walking" are to be attributed to the unfortunate circumstance of an abnormal leader and a criminal SS. This unfortunate entanglement ended in 1945. This kind of coming to terms with the past feeds first and foremost on the deceptive relief that the worst is over. Fascism cannot essentially be derived from the subjective dispositions of the leader and those who followed him. The objective conditions that gave rise to fascism still exist. The subjects still have to cross out their autonomous subjectivity if they want to live. The anger produced by this is still not directed against the cause of the oppression, but expresses itself qua identification mechanism in an unbroken nationalism, which is also instilled in people by the culture industry and democratically processed in the competition between the parties for the best representation of German interests.

Subordination to the purposes of capital and the state has ruined the intelligent character of natural scientists, the prerequisite for their potential freedom. For almost all chemists - and in this they differ essentially from physicists, mathematicians and biologists - the orientation towards one branch of industry, the chemical industry, and thus towards I.G.Farben, is a necessary prerequisite for them to work as chemists at all can. The history of I.G. Farben demonstrates where the adaptation of chemists to the purposes set for them leads. Because of their ruined intelligent character, the chemists are not in a position to draw the political consequences from the knowledge of this history. Therefore, a psychological defence mechanism takes effect, which immunizes against the political criticism that points to the

The continued existence of the objective preconditions of fascism, thus protecting the continuation of scientific activity for the chemical industry: I.G.Farben is the corpse in the cellar of the chemists' consciousness.

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Appendix

The above text is a lecture from 1985. It appeared together with other contributions in a brochure published by the ASTA of Carl von Ossietzky University entitled "Chemiker kämpfen für Deutschland. Chemistry and National Socialism" (July 1985). As the brochure was quickly sold out, I published the lecture again separately in May 1987 in the form of a small booklet - with a foreword explaining the university context in which the lecture was given at the time.

Foreword to the second edition

External circumstances have promoted this new edition. Two years ago now - on the occasion of the 4th anniversary of the capitulation of the National Socialist state - a commemorative event was organized by the President of the University to address the relationship between the natural sciences and National Socialism. The official lecture followed the pattern of the Federal Republic's coming to terms with the past: In itself, chemistry and chemists had contributed nothing to National Socialism, the "ambivalence" and "tightrope walk" of scientists were to be attributed to the abnormal Führer and a criminal SS, but with 1945 this unfortunate "entanglement" had ceased and the high-tech age could now begin from its beginnings without any worries. Many in the solemn hall were outraged by this falsification of history, which drove the commemorative event to the brink of a scandal.

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The ASTA then invited people to a counter-event in which the criticism was substantiated in lectures (including the one reprinted here) and discussion: "This kind of coming to terms with the past (the

chemists of today, who are not interested in the continuity from I.G. Farben to its successor organizations Bayer, Hoechst and BASF) feeds first and foremost on the deceptive relief that the worst is over. Fascism cannot be derived essentially from the subjective dispositions of the leader and those who followed him. The objective conditions that gave rise to fascism still exist." In July 1985, the ASTA published a brochure in which the official lecture (whose author was Prof. Dr.

Köll did not agree to its publication) and the critical presentations of the ASTA event and is now out of print.

As the past two years have shown, my lecture and the scientific community at this university are like fire and water. On the one hand, the Department of Chemistry did not want to be even remotely associated with the lecture, while at the same time confirming sentences from the lecture to the letter (such as: "Compared to other natural scientists, chemists are particularly allergic to reflection on the conditions of their science, to criticism of the subordination of scientific work to the purposes of capital and the state, and often react by lashing out at the critic. This subordination to the purposes of capital and the state, to which chemists are also necessarily exposed today, proves to be a highly sensitive point because of the special past of the chemical industry.") And the final passage, repeated here once again ("Subordination to the purposes of capital and the state has ruined the intelligent character of natural scientists, the prerequisite for their possible freedom. For almost all chemists - and in this they differ substantially

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of physicists, mathematicians, biologists - the orientation towards one branch of industry, the chemical industry, and thus towards the successors of I.G.Farben, is a necessary prerequisite for them to work as chemists at all

can. The history of I.G. Farben demonstrates where the adaptation of chemists to the purposes set for them leads. Because of their ruined intelligent character, the chemists are not in a position to draw the political consequences from the knowledge of this history. Therefore, a psychological defence mechanism takes effect that immunizes against political criticism, which points to the continued existence of the objective preconditions of fascism, and thus protects the continuation of scientific activity for the chemical industry: I.G.Farben is the corpse in the cellar of chemists' consciousness.") was able to directly demonstrate its truth and even had the power to prevent the publication of an annotated list of events for a semester, because chemistry professors with their comments on completely different events cannot be in the same issue together with such sentences. The diagnosis explained historically in the lecture - the subordination of science to the purposes of capital and the state has ruined the intelligent character of natural scientists - was confirmed by the (supposedly independent) university scientists themselves.

The "University Speeches", which are supposedly open to Oldenburg scientists, refused to print it - not without a little egg dance - and recently the university chemists fought tooth and nail against a reference to this lecture appearing in the research report of this university - probably out of consideration for the I.G.Farben successors and because it is difficult to look one's own intellectual depravation in the face.

So what is it about this paper that creates such turbulence - in contrast to many papers in the scientific community, which is not incapable of grinding down what at first glance seems unusual for general comparative validity? In the 1920s and 1930s, (German) high-pressure chemistry was "high-tech" or

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"Future technology". The connection between the technology policy of the time and its result is obvious - the German troops blitzkrieged through Europe with Leuna gasoline and on Buna tires. If we now use high-pressure chemistry to show what systematically determines the relationship between the state, capital and technological development, and if we show that the National Socialist state pursued not so much a specifically Nazi technology policy, but rather the most consistent technology policy of the time, then analogies to today's technology policy become apparent. The fact that the scientific establishment spits out this manuscript as indigestible is therefore not primarily due to the fact that the analysis of the past would not be permitted, but rather to the fact that today's technology policy is recognized in the model of the relationship between the Nazi state and I.G. Farben and that, in view of the (progressive) immanent transformation of the natural sciences into technology, natural scientists who are technologists today react sensitively to the historical indication of what their predecessors were capable of: High-Tech in I.G.Auschwitz. The horror that then flares up at their powerlessness in the face of their functionalization for the purposes of the state and capital turns into rage against the critic who voices it.

Oldenburg, May 1987.